UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

Date: February 28, 2019

Memo: Updated Public Release of Validated Data Results for Sampling of the Residential Area of the Beck's Lake NPL Site[1]

Overview:
U.S. Environmental Protection Agency (EPA) collected soil samples in October 2017 and December 2018 from residential properties in the City of South Bend close to LaSalle Park. The sample results helped EPA (i) understand whether the soil in properties near the LaSalle Park Area of the Beck's Lake site were contaminated with site-related lead and arsenic and (ii) define the boundary of the western edge of the historical landfill of the Beck's Lake Site. In summary, the soil sampling results indicate that there is no immediate risk from exposure to the soils in the sampled area.

EPA is providing this summary of the validated data to the affected communities and residents prior to determining what, if any, cleanup plan is needed, as part of our community involvement efforts and to be open with the public. While we protect individual property owner's private information, EPA strives to share information quickly and to be open to discussing sampling data.

2017 Sampling Methodology:
The residential sampling area includes Zones 1A and 1B and two properties in Zone 2. The sampling area encompassed properties west of the park to Kenmore Street; south to a line parallel to Newcome Street, between Washington Street and Jefferson Boulevard; and east to Kaley Street (Figures 2 and 4).

EPA and its contractor collected soil samples from 78 yards or yard equivalent units. At properties where there was a large yard area, EPA divided large yards into multiple "yard equivalent units." Each yard or yard equivalent unit is equal to one "yard unit." Each yard unit was less than or equal to 5,000 square feet in area. The samples were obtained at various depths as described below:

- **Surface soil:** EPA took surface soil samples (from 0-6 inches below ground surface [bgs]) from 78 yard units.
- **Near-surface soil:** EPA took near-surface samples (from 6 to 30 inches bgs, at 6 inch increments) from 36 of the 78 yard units, for a total of 144 near-surface samples.
- **Subsurface soil**: EPA took a total of 10 samples from seven subsurface soil cores (from 3 to 12 ft bgs).

The levels of lead and arsenic found at each sample location were screened against EPA's **Removal Management Level(s) (RML).** EPA developed RMLs to help identify areas, contaminants, and conditions where an immediate risk-based response action or immediate clean-up may be appropriate. EPA has established RML screening levels for residential soil of 400 parts lead per million parts soil (ppm) and 68 ppm arsenic.

Summary of 2017 Sampling Results:

- The **lead** results from the **surface** soil samples in the 78 yard units were all below EPA's RML of 400 ppm. Three **near-surface** sample results out of 144 were above the RML for lead. The highest lead in a **near-surface** sample was 939 ppm at 18-24 inch depth. The two other near-surface samples that exceeded 400 ppm were 402 ppm (at 6-12 inches bgs) and 488 ppm (at 18-24 inches bgs) at the same location. One **subsurface** sample from 3-6 ft depth had lead at 689 ppm **(Figure 5);** the others were all below the lead RMLs. Although these four sample

[1] Please note the update includes a revision to the April 13, 2018 Memo titles of **Figures 2 and 4**. The title for **Figure 2** was revised "Surface **and Near Surface** Lead Concentrations. The title for **Figure 4** was revised "Surface **and Near Surface** Arsenic Concentrations". The legend/key, the data at the depth intervals in the key of the figures and the data in the narrative of the memo will remain unchanged. A **Figure 5** was created to display the analytical results of the subsurface soil borings.

results were above the RML, they were obtained below the soil surface. The soil surface offers a protective barrier and helps prevent direct contact with these soils. A bar graph showing the range and distribution of the surface and near-surface lead results is shown in **Figure 1** and a map of the lead sampling results on a block level is shown in **Figure 2.**

- The **arsenic** results from the surface soil samples in the 78 yard units were all below the EPA's RML of 68 ppm. Two **near-surface** sample results out of 144 were above the RML for arsenic. The highest arsenic in a **near-surface** sample was 87.9 ppm at 12-18 inch depth. The other near-surface sample that exceeded 68 ppm was 74.1 ppm at 18-24 inches at the same location. None of the **subsurface** (3-12 ft.) arsenic samples exceed RMLs. (**Figure 5**) Although there were two sample results above the arsenic RML, they were obtained below the soil surface, which offers a protective barrier and helps prevent direct contact with these soils. A bar graph showing the range and distribution of the arsenic surface and near-surface results is shown in **Figure 3** and a map of the arsenic sampling results on a block level is shown in **Figure 4**.

- The areas where the lead and arsenic results exceed the RML screening value do not show evidence of recent digging or subsurface activities.

2018 Soil Investigation:

In December 2018, EPA continued residential soil investigation along properties on North Kenmore Street. The soil investigation helped EPA to define the boundary of the western edge of the historical landfill of the Beck's Lake Superfund Site and helped EPA to determine if contaminants from the former landfill migrated to the residential area along Kenmore Street. The soils from properties sampled on Kenmore did not have any observations of waste-like materials that are typically seen in a landfill, and the deeper samples showed native sands local to the area.

The soil sampling results indicate that there is no immediate risk from exposure to the soils in the sampled area, and no immediate clean-up is needed. EPA, Indiana Department of Environmental Management (IDEM) and the Agency for Toxic Substances and Disease Registry will be conducting further evaluations of the data to determine if additional steps are necessary under the Superfund process.

For more information, visit EPA's website for the Beck's Lake NPL site at www.epa.gov/superfund/becks-lake.

If you have any questions about the data or Figures please contact:

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Lead and Arsenic Resources

If you have general questions or concerns about lead or arsenic these websites have additional information, including phone numbers and contact information you can call:

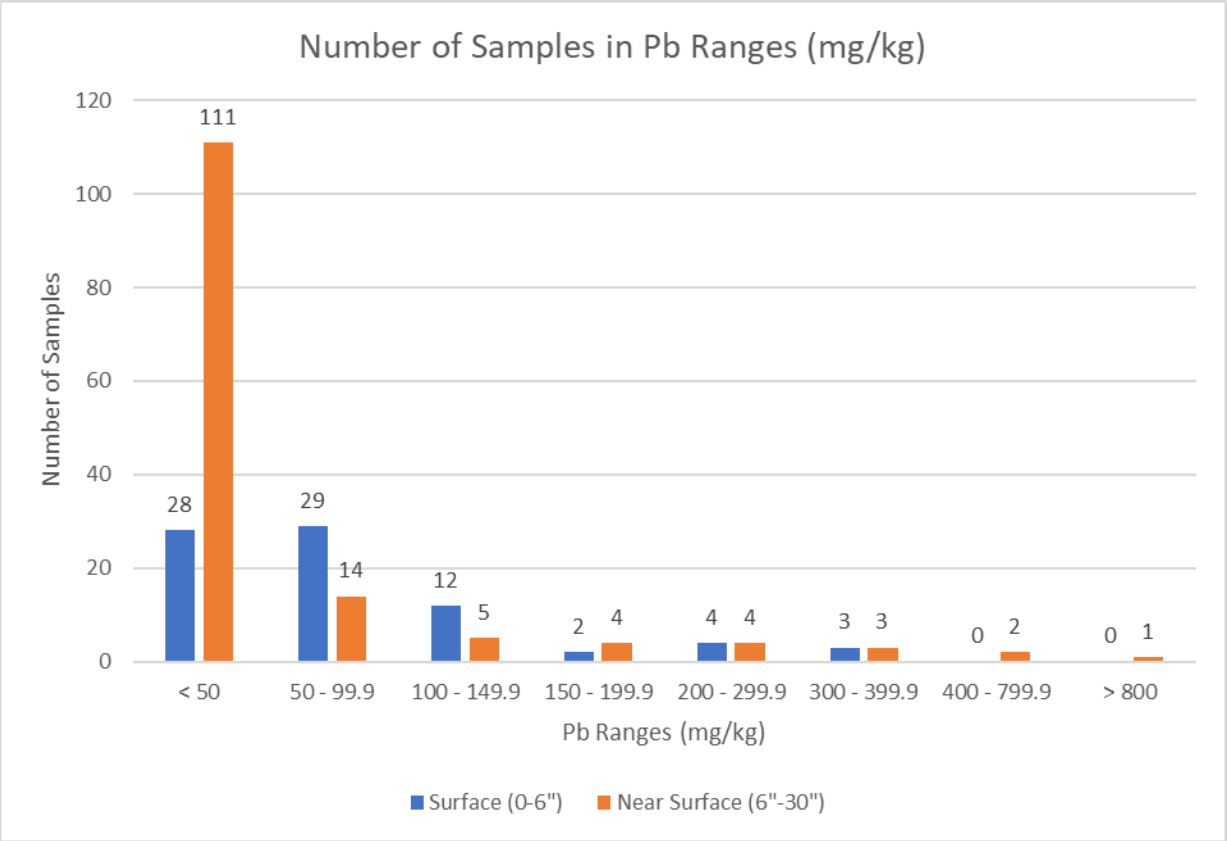
U.S. Environmental Protection Agency
https://www.epa.gov/lead
https://www.epa.gov/c-ferst/c-ferst-issue-profile-arsenic

Indiana Department of Environmental Management
http://www.in.gov/idem/health/2333.htm
https://www.in.gov/idem/files/factsheet_arsenic.pdf

Agency for Toxic Substances and Disease Registry
https://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=19&tid=3
https://www.atsdr.cdc.gov/toxfaqs/tfacts13.pdf

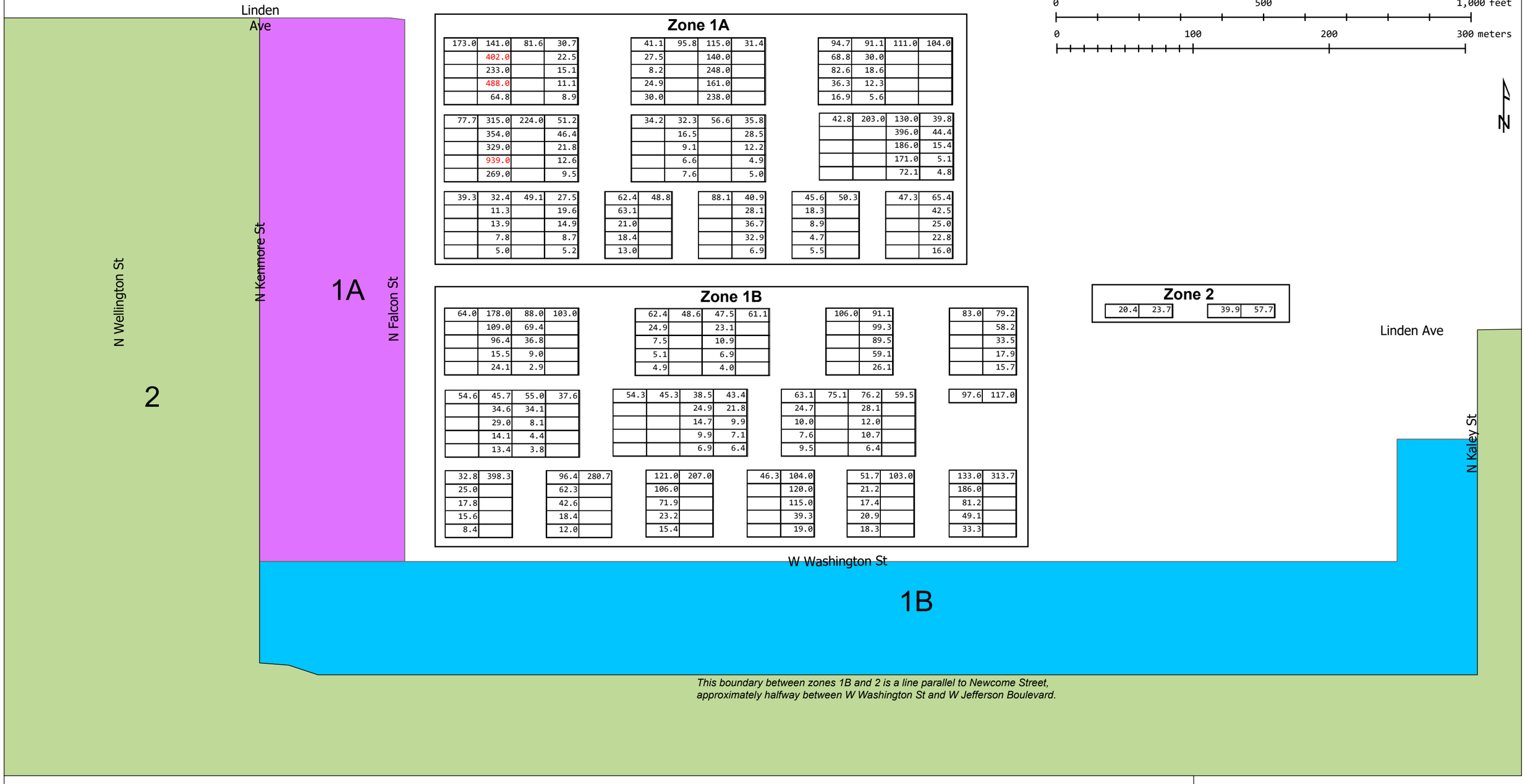
The St. Joseph County Health Department
http://www.sjchd.org/environmental/lead/

Figure 1. Number of samples from the Beck's Lake Residential surface and near-surface sampling validated data with concentrations of lead (Pb) in selected concentration ranges.



Notes:

- EPA's RML for lead = 400 ppm (400 mg/kg)
- **Subsurface** samples are not included in these numbers



Zone 1A

173.0	141.0	81.6	30.7
	402.0		22.5
	233.0		15.1
	488.0		11.1
	64.8		8.9

41.1	95.8	115.0	31.4
27.5		140.0	
8.2		248.0	
24.9		161.0	
30.0		238.0	

94.7	91.1	111.0	104.0
68.8	30.0		
82.6	18.6		
36.3	12.3		
16.9	5.6		

77.7	315.0	224.0	51.2
	354.0		46.4
	329.0		21.8
	939.0		12.6
	269.0		9.5

34.2	32.3	56.6	35.8
	16.5		28.5
	9.1		12.2
	6.6		4.9
	7.6		5.0

42.8	203.0	130.0	39.8
		396.0	44.4
		186.0	15.4
		171.0	5.1
		72.1	4.8

39.3	32.4	49.1	27.5
	11.3		19.6
	13.9		14.9
	7.8		8.7
	5.0		5.2

62.4	48.8
63.1	
21.0	
18.4	
13.0	

88.1	40.9
	28.1
	36.7
	32.9
	6.9

45.6	50.3
18.3	
8.9	
4.7	
5.5	

47.3	65.4
	42.5
	25.0
	22.8
	16.0

Zone 1B

64.0	178.0	88.0	103.0
	109.0	69.4	
	96.4	36.8	
	15.5	9.0	
	24.1	2.9	

62.4	48.6	47.5	61.1
24.9		23.1	
7.5		10.9	
5.1		6.9	
4.9		4.0	

106.0	91.1		
	99.3		
	89.5		
	59.1		
	26.1		

83.0	79.2		
	58.2		
	33.5		
	17.9		
	15.7		

54.6	45.7	55.0	37.6
	34.6	34.1	
	29.0	8.1	
	14.1	4.4	
	13.4	3.8	

54.3	45.3	38.5	43.4
		24.9	21.8
		14.7	9.9
		9.9	7.1
		6.9	6.4

63.1	75.1	76.2	59.5
24.7		28.1	
10.0		12.0	
7.6		10.7	
9.5		6.4	

97.6	117.0

32.8	398.3
25.0	
17.8	
15.6	
8.4	

96.4	280.7
62.3	
42.6	
18.4	
12.0	

121.0	207.0
106.0	
71.9	
23.2	
15.4	

46.3	104.0
	120.0
	115.0
	39.3
	19.0

51.7	103.0
21.2	
17.4	
20.9	
18.3	

133.0	313.7
186.0	
81.2	
49.1	
33.3	

Zone 2

20.4	23.7	39.9	57.7

This boundary between zones 1B and 2 is a line parallel to Newcome Street, approximately halfway between W Washington St and W Jefferson Boulevard.

Zone 1A
Zone 1B
Zone 2

Lead value at 0-6" bgs
Lead value at 6-12" bgs
Lead value at 12-18" bgs
Lead value at 18-24" bgs
Lead value at 24-30" bgs

Notes:
1. Lead values are stated in ppm (parts per million)
2. The boxes summarizing the data from Zones 1A, 1B, and 2 do not represent a particular location on the block with which the data is affiliated.

BECKS LAKE SUPERFUND SITE - RESIDENTIAL AREA
SOUTH BEND, ST. JOSEPH COUNTY, INDIANA

FIGURE 2
SURFACE AND NEAR SURFACE LEAD CONCENTRATIONS

EPA REGION 5 RAC 2 | REVISION 0 | FEBRUARY 2019

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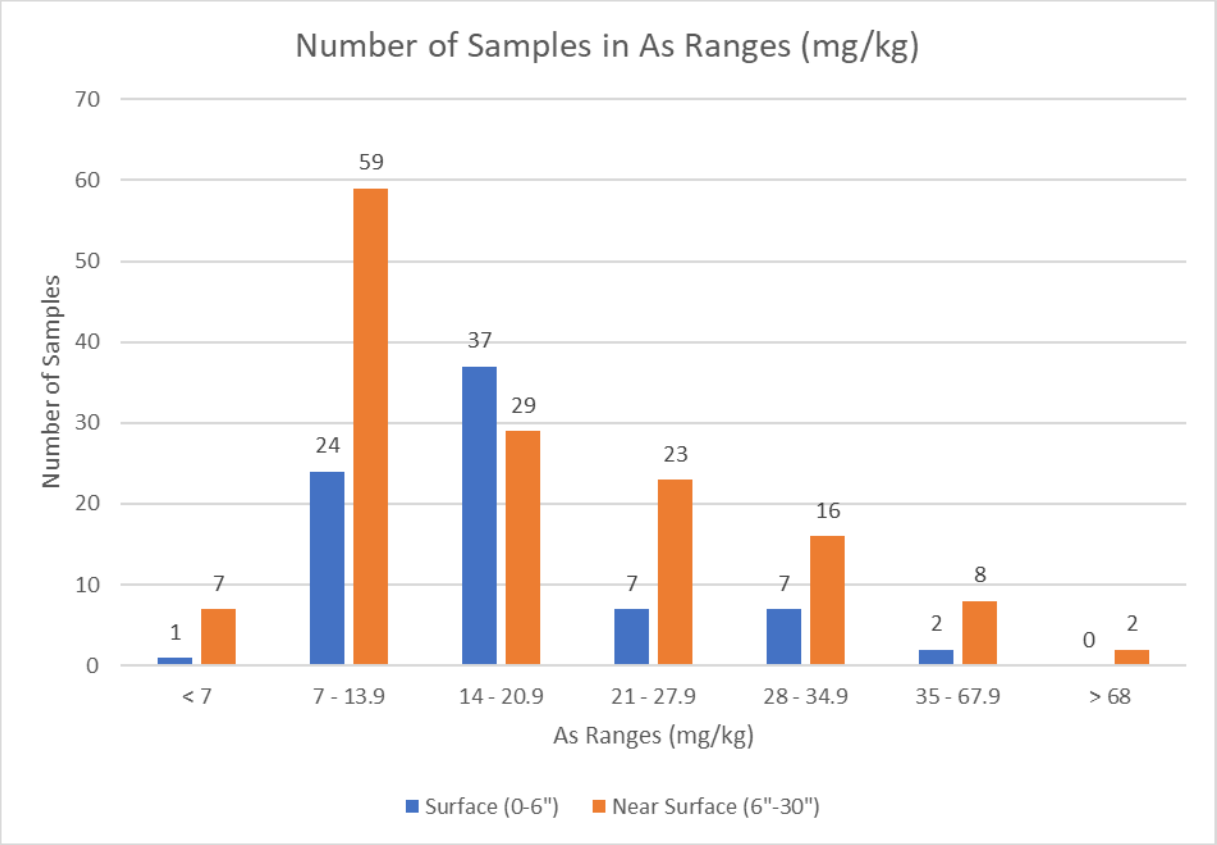
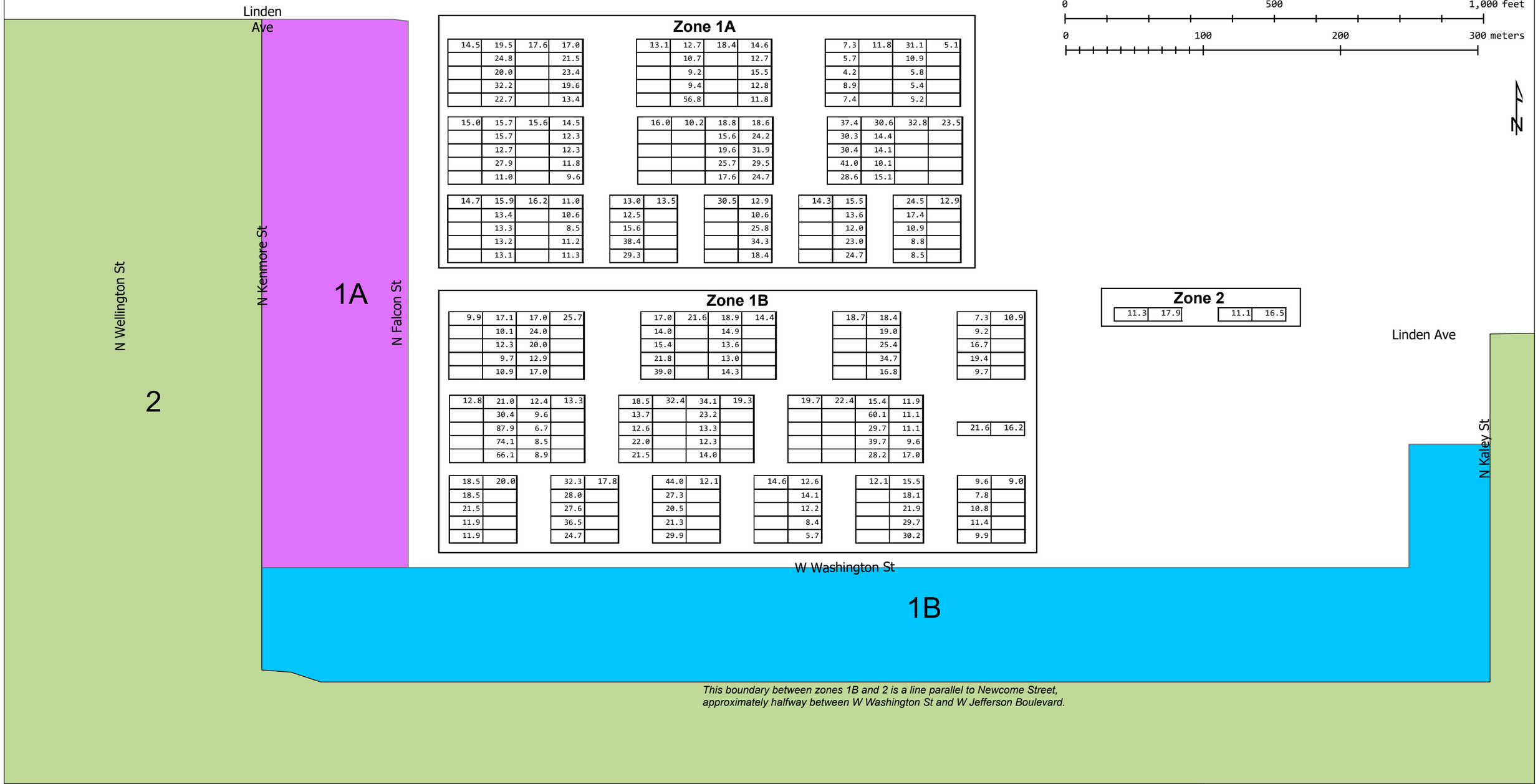
Figure 3. Number of samples from the Beck's Lake Residential surface and near-surface sampling validated data with concentrations of Arsenic (As) in selected concentration ranges.



Notes:

- EPA's RML for Arsenic = 68 ppm (68 mg/kg)
- **Subsurface** samples are not included in these numbers



Zone 1A
Zone 1B
Zone 2

Arsenic value at 0-6" bgs
Arsenic value at 6-12" bgs
Arsenic value at 12-18" bgs
Arsenic value at 18-24" bgs
Arsenic value at 24-30" bgs

Notes:

1. Arsenic values are stated in ppm (parts per million)
2. The boxes summarizing the data from Zones 1A, 1B, and 2 do not represent a particular location on the block with which the data is affiliated.

BECKS LAKE SUPERFUND SITE - RESIDENTIAL AREA
SOUTH BEND, ST. JOSEPH COUNTY, INDIANA

FIGURE 4
SURFACE AND NEAR SURFACE ARSENIC CONCENTRATIONS

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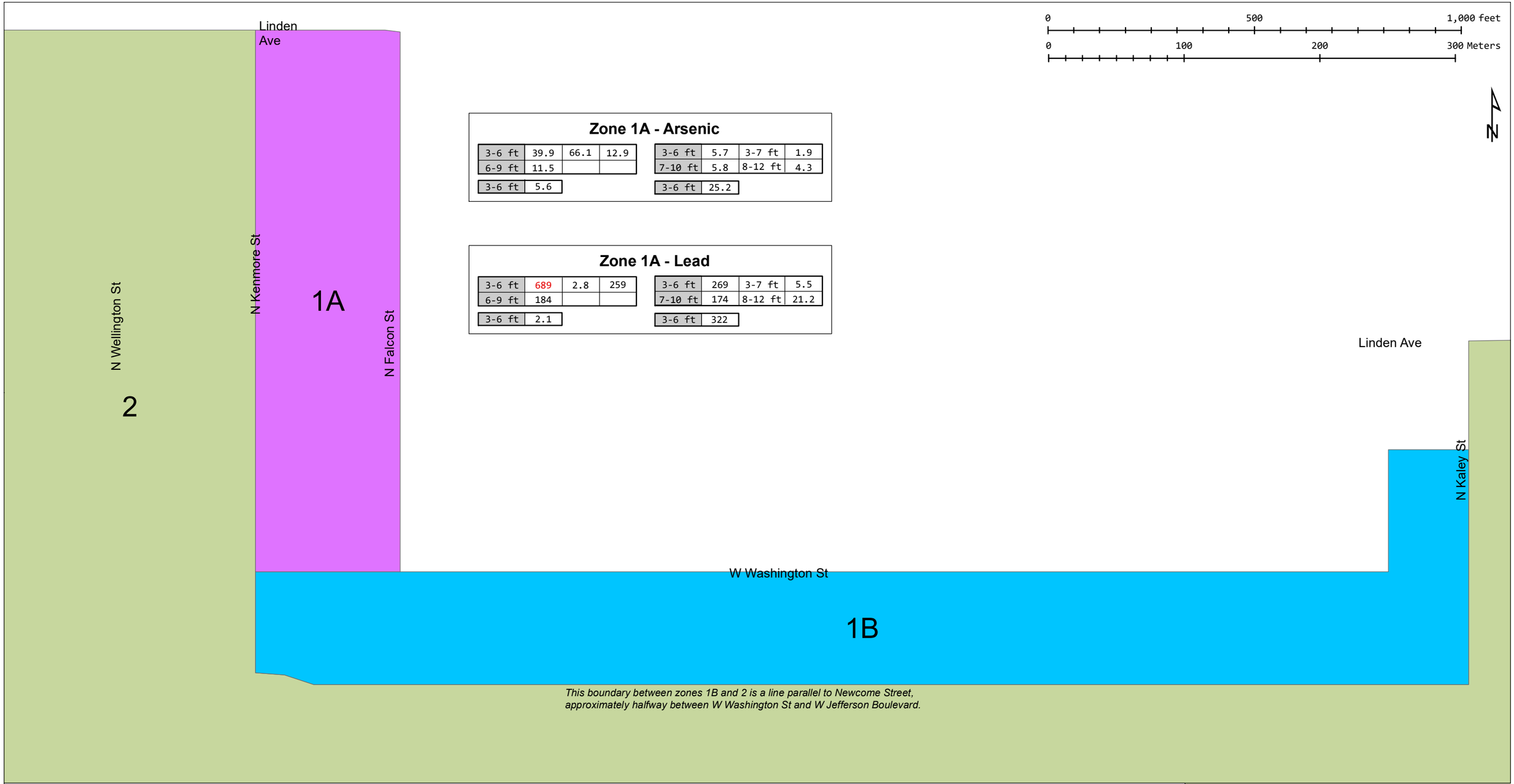

Zone 1A
Zone 1B
Zone 2

Notes:
1. Lead and Arsenic values are stated in ppm (parts per million)
2. The boxes summarizing the data from Zone 1A does not represent a particular location on the block with which the data is affiliated.
3. Depths are in feet below ground surface

Depth (ft)	Concentrations at depth (ppm)

The shaded column is the depth the sample was taken and the unshaded column(s) to the right of the depth is/are the value(s) of the sample results (concentrations in ppm)

BECKS LAKE SUPERFUND SITE - RESIDENTIAL AREA
SOUTH BEND, ST. JOSEPH COUNTY, INDIANA

FIGURE 5
SUBSURFACE LEAD AND ARSENIC CONCENTRATIONS

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